REMARKS/ARGUMENTS

Prior to this Amendment, claims 1-11 were pending in the application. New claims 12-16 are added to further protect features of the invention not shown by the cited references. No new matter is added by these amendments with support being found at least in the originally filed claims, Figures 1A, 4A, 5A, and 5B, and the specification at page 4, line 19 to page 5, line 29.

Claims 1-16 remain in this application for consideration by the Examiner.

Objections to the Drawings

In the June 17, 2003 Office Action, the drawings were objected to due to a number of informalities in numbering and for failing to number elements shown in the figures and/or described in the specification. Formal drawings are provided in the attached Replacement Sheets. It is believed that the amendments to the figures and to the specification address the objections.

Rejections Under 35 U.S.C. § 103

In the June 17, 2003 Office Action, claims 1-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,067,093 ("Grau"). This rejection is traversed based on the following remarks.

Claim 1 is directed to a method of displaying nodes within a network topology including "grouping the group nodes of the second layer into a third layer, the third layer having at least one connected-superset node containing group nodes with nodes connected to each other, and at least <u>one isolated-superset node containing group nodes having nodes isolated from each other</u>." Further, claim 1 calls for "displaying the superset nodes in the third layer" with each of the supersets being selectively expandable "to display group nodes of the second layer." Because at least these elements of claim 1 are not shown or suggested by Grau, claim 1 is allowable over this reference.

Initially, it should be noted that the Office Action states that the feature of the superset being selectively expandable is not shown in Grau. However, the Office Action states that this feature would be obvious in light of Grau teaching a user interface for viewing portions of a tree structure. The Office Action cited Grau at col. 4, lines 40-45, col. 5, lines 3-13, and col. 10, lines 50-56. Grau at the cited references teaches viewing configuration, state, and

history information for network components, viewing topology data and browsing the "atlas", and discusses how a "spanning tree 1100" is used to layout a network (not necessarily how the atlas-like topology is later displayed). None of these specific references teach the concept of displaying superset nodes that are selectively expandable to show group nodes and connections between the nodes in such supersets.

The basic concept of Grau is to model a network as if it were a number of pages of an atlas and on each page hub and spoke techniques are used as a basis for displaying the network (e.g., see col. 9, line 62 to col. 10, line 5). Figure 6 of Grau shows that cross-referenced pages of the atlas may be shown as icons 650, 650a, but these are not supersets that are selectively expanded and are instead links to other pages of the atlas that when selected call up the cross-referenced object. See, also, col. 7, line 55 to col. 8, line 11 which discusses the use of page icons to provide links to differing pages of the atlas and the idea of scrolling on a page. Grau provides one technique for viewing a network topology but fails to suggest that it would be useful to model a network as a series of layers each with one or more groups of nodes or sets of groups of nodes. Further, there is no motivation provided in Grau itself to modify its teachings to provide for such groupings and modeling with multiple levels. Hence, claim 1 is not obvious for this reason and is in condition for allowance.

Further, claim 1 requires that the third layer includes "at least one isolated-superset node containing group nodes having nodes isolated from each other." The Office Action cites Grau at Figure 11 with an item labeled by the Examiner as item "B" as teaching this limitation of claim 1. Referring to the marked up Figure 11, item B is a portion of the "hub-and-spoke star groupings 1110" and is shown to include four components that are linked together and are further linked to hub 1120. These are not "nodes isolated from each other" as called for in claim 1. The concept of an isolated-superset node is explained in more detail in Applicants' specification at page 5, lines 15-18 and with reference to elements 252, 256 in Figure 2 and element 508B in Figure 5B. In contrast, all of Grau's teachings are to linked objects (see, col. 9, lines 62-65 "novel layout operations that generate a compact connected graph of linked objects that is organized on a page basis"). For this additional reason, claim 1 is not obvious in light of Grau.

Claims 2-9 depend from claim 1 and are believed allowable for at least the reasons for allowing claim 1. Additionally, claim 5 calls for the group nodes in the connected-superset

node to include switch groups and host groups. Grau is cited at col. 3, lines 44-47 for teaching this limitation, but at this point and elsewhere, Grau does not teach grouping into switch groups or host groups but instead merely mentions that switches, routers, hubs, and the like may be in a network and would be shown in the Grau displays (whereas a "switch group" would include the components connected to that switch). There is no similar grouping in Grau which instead teaches that items are "grouped near neighboring objects" (at col. 9, lines 66-67) with proximity being the key focus. Claim 8 calls for the isolated-superset node to include unmapped hubs and isolated switches. Grau only teaches displaying a linked network. No reference is provided in the Office Action for the elements of claim 8. For these additional reasons claims 5 and 8 are believed allowable over Grau.

Independent claim 10 is directed to a method of displaying nodes with a network topology. Claim 10 includes similar language as claim 1, and the arguments provided for allowing claim 1 are equally applicable to claim 10. For example, claim 10 requires grouping of nodes into three layers for use in the displaying process, and this layered grouping is not taught or suggested by Grau which instead teaches the use of "spanning trees" arranged on pages of an "atlas." Additionally, claim 10 calls for the third layer to include a grouping of group nodes with "at least one connected-superset node containing group nodes with nodes connected to each other, but not connected to any other nodes belonging to other connected-superset nodes." See element 502B of Figure 5B for an example of such a connected-superset node. Grau does not suggest the concept of connected-superset nodes. The Office Action points to Figure 11 at the element labeled "A" for this teaching. However, Grau at element "A" is merely showing two components that are connected to each other AND to all the other groups via the hub 1120 of the spoke 1110 (and to other spoke and star groupings via root 1150). For this additional reason, claim 10 is allowable over Grau, with the reference failing to teach or suggest each and every element of the claim. Claim 11, which depends from claim 10, is allowable because it depends from an allowable base claim.

New claims 12-16 are added to more fully protect the features of the invention not shown by Grau. Claim 12 is directed to a method for graphically displaying a network that includes forming first, second, and third layers. What is included in each layer is defined in claim 12, with the first layer including components and interconnections of the network, the second layer including groups of the nodes in the first layer group into group nodes based on a "grouping criteria", and the third layer including sets of nodes formed by grouping one or

more of the group nodes from the second layer. Displaying the formed multilayer representation is performed in the method of claim 12 with the group nodes of the second layer being expandable to display the nodes within that group and the sets of the third layer being expandable to display the group nodes of the second layer. Grau teaches arranging a network into an atlas with scrollable pages representing spanning trees but fails to teach forming a multilayer representation of a network with each layer containing the content called for in claim 12. Further, Grau, as noted in the Office Action, fails to teach the ability to selectively expand group nodes or sets of nodes and with this failure in mind, certainly, fails to teach the specific expansion technique called for in claim 12 (defining what is displayed upon such expansion). Hence, claim 12 is believed to be allowable over Grau.

Claims 13-16 depend from claim 12 and are believed allowable at least for the reasons for allowing claim 12. Further, claim 13 further defines the grouping criteria to be based on functional relationships. In contrast, Grau is directed to a very mathematical or geometrical technique for arranging nodes of a network based on physical proximity. Figures 12-16 and col. 10, line 46 to col. 12, line 67 of Grau are dedicated to explaining the formulas and techniques used to decide how to organize the networked or connected components into a displayable topology that can be scrolled within a page. There is no discussion in Grau that grouping of nodes could be based on functional relationships, such as all components using a switch being grouped into a switch group. Claim 14 further calls for the functional relationships to not require physical proximity in the network, which distinguishes the method of claim 14 further from Grau's teachings. Claim 15 calls for connections to continue to be shown when nodes are selectively expanded or collapsed, which is not shown by Grau. Claim 16 (as with claim 1) brings in the ideas of connected-superset nodes and isolated-superset nodes that are not shown or even suggested by Grau. For these additional reasons, claims 13-16 are allowable in view of Grau.

Conclusions

The additional references cited in the Office Action but not relied upon by the Examiner have been reviewed but are not believed to be any more relevant than the cited reference. The pending claims are believed allowable over these cited references.

No fee is believed due with this response. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Attachment (Replacement Sheets containing Formal Drawings)